cause of the recessive nature of these enzyme disorders, they appear unexpectedly in the offspring of normal parents, who are alerted, unfortunately, only after they have produced at least one affected child. Future efforts to eliminate such risks entirely will depend upon the success of heterozygote screening methodology. Although such screening would involve a much larger population sample, cost benefit analyses—comparing diagnostic expense with treatment and institutional expenses—usually show a favorable economic ratio.

• *X-linked Disorders.* No specific methods exist for the detection of serious disorders such as hemophilia or Duchenne's muscular dystrophy. However, a carrier mother who wishes to avoid the risk of producing an affected male offspring can have the sex of the developing fetus determined by amniocentesis and undergo selective abortion to give birth only to female children. This application of amniocentesis will tend to increase as reproductive compensation leads to a rising proportion of female heterozygotes in subsequent generations.

• *Congenital Malformations.* Recently, alpha-fetoprotein elevations have been noted in amniotic fluids associated with anencephaly and meningomyelocele. Since the recurrence risks of such malformations in a family is greater than that of the general population, amniocentesis may prove to be of value in preventing additional cases.

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Urinary Tract Infections In Children

THE SIGNIFICANCE, diagnosis and management of urinary tract infections (UTI) in children continue to be subjects of major controversy.

Whereas the long-term sequelae of urinary tract infections and especially their relationship to chronic renal failure, prematurity, neonatal mortality and hypertension remain unclear and need further study, the importance of the subject at this time is two-fold: (1) the recognized propensity of UTI to cause chronic ill health in children and (2) the known association of UTI with urinary tract anomalies in children, for which they therefore act as a useful indicator.

The prevalence of UTI is now known to be considerable: 12 to 20 out of any 1,000 school age girls have UTI at any one time. The incidence in boys (except in the first year of life and in the prostatic age group) is insignificant.

UTI diagnosis is hampered and delayed for several reasons. (1) Symptoms are often absent or non-specific. A high index of suspicion is therefore essential and the disease should be actively searched for in known target populations, for example, sick children, children with known congenital and acquired defects associated with UTI and those who have a past history of UTI. (2) Traditional laboratory methods of diagnosis are inaccurate (routine urinalysis) or expensive (urine cultures and sensitivity). Significant bacteriuria is now recognized to be the only reliable diagnostic criterion. Readily available screening methods which are simple to use, inexpensive and of proven reliability make the application of this criterion practical. (3) Collecting accurate urine specimens from children is difficult. Reliance on multiple rather than single specimens, close attention to details of perineal cleansing and judicious use of suprapubic aspiration are methods helpful in overcoming this problem.

The policy of radiologic investigation with excretory urograms and voiding cystourethrograms of all children (after even their first UTI) is becoming more generally accepted. Vesico-ureteral reflux is the most common anomaly uncovered, and it is the one problem associated with urinary tract infection that is known on occasion to lead to progressive renal disease (atrophic pyelonephritis also referred to as reflux nephropathy). However, there is agreement that not all patients with vesico-ureteral reflux require major operation or even invasive urologic instrumentation, as minor degrees of this anomaly are often reversible and certainly pose little danger of progressive renal damage. The policy of conservative expectant follow-up is recommended. Procedures such as ureteral dilation, internal urethrotomy, meatotomy and bladder neck reconstructive procedures, are being over-used without clearcut indications or definite evidence of their efficacy.

The recurrent nature of UTI has been emphasized and the need for careful persistent long-term follow-up with serum urine cultures is generally recommended.

Until the long-term sequelae, methods of diag-

nosis and follow-up, indications for operation and "state of the art" for managing this condition are more generally known and applied, there are serious questions as to whether mass screening for UTI should be employed.

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Immediate Post-Partum Immunization for Rubella

THE NATIONWIDE EFFORT begun in 1969 to control rubella and prevent its teratogenic effects was focused on the immunization of children from a year to 12 years old. It was expected that the "herd immunity" thus established would protect non-immune women of child bearing age. Several recent epidemics among adolescent and college-age students have raised doubts about the validity of this concept. Recently, the United States Public Health Service has reported the desirability of extending the use of rubella vaccine to adolescent girls and adult women who have been shown serologically to be non-immune to rubella. In this group it is necessary to prove non-pregnant status and to assure prevention of pregnancy for at least two months and preferably three.

The ideal time for immunizing non-immune women is in the immediate postpartum period when non-pregnant status is certain and is likely to continue beyond the time that infection with the vaccine virus is a hazard. It would also be advisable to prescribe an effective method of contraception for at least three months following vaccination.

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Coronary Heart Disease Prevention

The Multiple Risk Factor Intervention Trial (MRFIT)

CORONARY HEART DISEASE remains the leading community health problem in the nation. To control this epidemic we must direct our attention to primary prevention. American men are at higher risk than women, having one chance in five of developing the disease before the age of 60. Other than age and sex, the most important risk factors, convincingly established by a multitude of prospective studies, are elevated serum cholesterol, elevated blood pressure and cigarette smoking. Results of recent studies in behavioral sciences, nutrition and clinical trials indicate that these three risk factors can be modified. The expectation is great, therefore, that alteration of these risk factors can reduce the incidence rate of coronary heart disease. This is the main objective of MRFIT.

The Multiple Risk Factor Intervention Trial is being conducted, under National Heart and Lung Institute auspices, in twenty clinical centers in the United States, and will continue for a perod of six years. Its main objective is to determine whether a safe and systematic intervention aimed at altering the risk factors among men aged 35 to 57, who are at risk, will result in a significant reduction in the incidence of coronary heart disease death.

Selection of volunteers who wish to participate in the program is by three screening procedures and randomization of participants into special intervention (cases) and regular (control) groups. Both groups will be followed for six years. There are three centers in California, one at the Pacific Medical Center in San Francisco, one at the University of Southern California in Los Angeles and the third at the University of California School of Medicine at Davis in the Sacramento area.

It is hoped that practicing physicians will lend their support to this important community health program. If this program demonstrates a reduced mortality among those in the special intervention group, it will constitute a major advance in our capabilities to achieve primary prevention of coronary heart disease, and perhaps help bring this tragic epidemic under control.

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